

## REMARKS

Applicants have cancelled claims 1-57 and claims 69-74 without prejudice or disclaimer. Applicants are presently pursuing claims corresponding to claims 1-57 and 69-74 in other pending applications. By canceling these claims in this application, Applicants in no way acquiesce to any of the rejections of the Examiner. Applicants reserve the right to reintroduce these claims into the Application at a later date. Claims 58-68 and 75-95 are now pending in the application.

### Double Patenting Rejection

The Examiner rejected claims 1-95 as allegedly being unpatentable under the judicially created doctrine of obviousness-type double patenting over claims 1-39, 45, and 46 of application Serial No. 08/822,774, now U.S. Patent No. 6,183,997. See Office Action mailed December 29, 2000, page 2, Item No. 2.

Currently pending claims 58-68, and 77-80 all recite P45 protein or antibodies which bind to P45 protein. The Examiner has not explained why that subject matter would have been obvious in view of claims 1-39, 45, and 46 of Serial No. 08/822,774.

Pending claims 74-76, 81-83, 86 and 95 are method claims. Serial No. 08/822,774 contains no method claims. The Examiner has not explained why that subject matter would have been obvious in view of claims 1-39, 45, and 46 of Serial No. 08/822,774.

Claims 84 and 85 recite specific sequences which are not claimed in any claims of Serial No. 08/822,774. The Examiner has not explained why that subject matter would have been obvious in view of claims 1-39, 45, and 46 of Serial No. 08/822,774.

Claims 87-93 are drawn to protein extracts comprising *Thermus thermophilis* proteins that possess dUTPase activity. Such proteins are not mentioned in any of the claims of Serial No. 08/822,774. The Examiner has not explained why that subject matter would have been obvious in view of claims 1-39, 45, and 46 of Serial No. 08/822,774.

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Claim 94 is drawn to a computer readable medium. The Examiner has not explained why that subject matter would have been obvious in view of claims 1-39, 45, and 46 of Serial No. 08/822,774.

Accordingly, Applicants traverse the obviousness-type double patenting rejection of claims 58-68 and 75-95, and respectfully request reconsideration and withdrawal of this rejection.

Rejection Under §112, Second Paragraph

The Examiner rejected claims 1-95 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. See Office Action mailed December 29, 2000, page 2, Item No. 3.

Specifically, the Examiner rejected the claims for recitation of "or analogs thereof," "sequences hybridizable thereto," "degenerate variants thereof," and "wholly or partially synthetic protein." See Office Action, paragraph bridging pages 3 and 4.

Claims 58-68, 75-83, and 86-95 are free of all of these phrases. Thus, the Examiner's rejection is inappropriate for these claims.

Claim 84 recites a DNA encoding a PEF activity comprising "(a) one or more of SEQ ID No.:32-35, 82, 83, or 70, (b) a sequence hybridizable to the complement of one or more [of] those sequences under stringent conditions, or (c) a degenerate variant of (a) or (b)." Applicants assert that one of skill in the art knows what a "degenerate variant" of the enumerated sequences would comprise in view of the genetic code. One of skill in the art would also know what stringent conditions for hybridization would entail. Thus, the Examiner has not established that claim 84 is indefinite.

Accordingly, Applicants traverse the rejection of claims 58-68 and 75-95 under §112, second paragraph, and respectfully request reconsideration and withdrawal of this rejection.

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Rejections Under § 112, First Paragraph

The Examiner rejected claims 1-95 under 35 U.S.C. §112, first paragraph, as allegedly not being enabled. See Office Action mailed December 29, 2000, page 4, Item No. 4.

Specifically, the Examiner rejects claims encompassing proteins other than those isolated from *Pyrococcus furiosus*, defined by molecular weight or by the disclosed sequences. The Examiner further states that there is no information on whether the sequence of this protein is conserved across evolutionary lines. See *Id.*, page 5, lines 3-4. Applicants respectfully traverse this rejection.

Claims 58-68 and 77-83 recite P45 protein. The Examiner fails to explain why those claims are not enabled by the specification.

Claims 75 and 76 recite methods for detecting the presence of PEF activity in a sample. The Examiner fails to explain why those claims are not enabled by the specification.

Claim 84 recites DNA having particular (a) Sequence ID Nos., (b) sequences that hybridize to the complement of such sequences under stringent conditions, or (c) a degenerate variant of (a) or (b). The Examiner fails to explain why one skilled in the art would require undue experimentation to determine DNA sequences that encode PEF activity and that hybridize to the particular sequences under stringent conditions. Thus, the Examiner has not established that claim 84 fails the enablement requirement of § 112.

Claim 85 recites specific sequences. The Examiner fails to explain why that claim is not enabled by the specification.

Claim 86 recites a method for cloning a PEF activity by hybridizing a clone to a particularly recited sequence. The Examiner fails to explain why one skilled in the art could

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not practice the method of claim 86 without undue experimentation. Thus, the Examiner has not established that claim 84 fails the enablement requirement of § 112.

Claims 87-93 recite protein extracts comprising proteins from *Thermus thermophilus* that possess dUTPase activity. Example 13 (page 64, line 17, through page 66, line 32) discusses preparation and use of antibodies generated against P45 to find a *Thermus thermophilus* protein recognized by the antibodies. This protein was demonstrated to have dUTPase activity by a dUTP conversion assay (page 66, lines 24-32). The Examiner has not explained why claims 87-93 are not enabled by the specification.

Claims 94 and 95 recite a computer readable medium and a method of using the medium to screen for a PEF. The Examiner fails to explain why those claims are not enabled by the specification.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 58-68 and 75-95 under §112, first paragraph.

Rejections Under §103(a)

The Examiner rejected claims 1-95 under 35 U.S.C. § 103(a) as allegedly being obvious over U.S. Patent No. 5,556,772 to Sorge et al. (Sorge). See Office Action mailed December 29, 2000, page 5, Item No. 6. Specifically, the Examiner alleges that Sorge discloses "compositions of matter, mixtures, kits, complexes and proteins isolated from *Pyrococcus furiosus* [sic], that [enhance] polymerase activity by increasing fidelity." See Id., page 5, last paragraph.

Sorge teaches polymerases and polymerase compositions with enhanced fidelity.

Claims 58-68 and 77-83 recite P45 protein. The Examiner fails to explain how Sorge would have suggested P45 protein.

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Claims 75 and 76 recite methods for detecting the presence of PEF activity in a sample. PEF is not a polymerase. Thus, the Examiner fails to explain how those claims would have been obvious over Sorge.

Claims 84-86 recite PEF activity. PEF activity is not polymerase activity. Thus, the Examiner fails to explain how those claims would have been obvious over Sorge.

Claims 87-93 recite protein extract comprising proteins from *Thermus thermophilus* that possess dUTPase activity. Such proteins are not polymerases. Thus, the Examiner fails to explain how those claims would have been obvious over Sorge.

Claims 94 and 95 are drawn to a computer readable medium containing information about PEF protein and a method of its use. PEF protein is not a polymerase. Thus, the Examiner fails to explain how these claims would have been obvious over Sorge.

Applicants traverse the rejection of claims 58-68 and 75-95 under 35 U.S.C. §103(a), and respectfully request reconsideration and withdrawal of that rejection.

Claims 58-68 and 75-95 are in a condition for allowance, and Applicants respectfully request the timely allowance of the pending claims. If the Examiner does not consider the claims allowable, Applicants request that he call the undersigned at (650) 849-6620 to set up an interview prior to taking further action.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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By:

  
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